Operations Research Priorities for TB Screening, Diagnosis, and Referral in HIV Care/ART Settings

Enhancing Quality of Care
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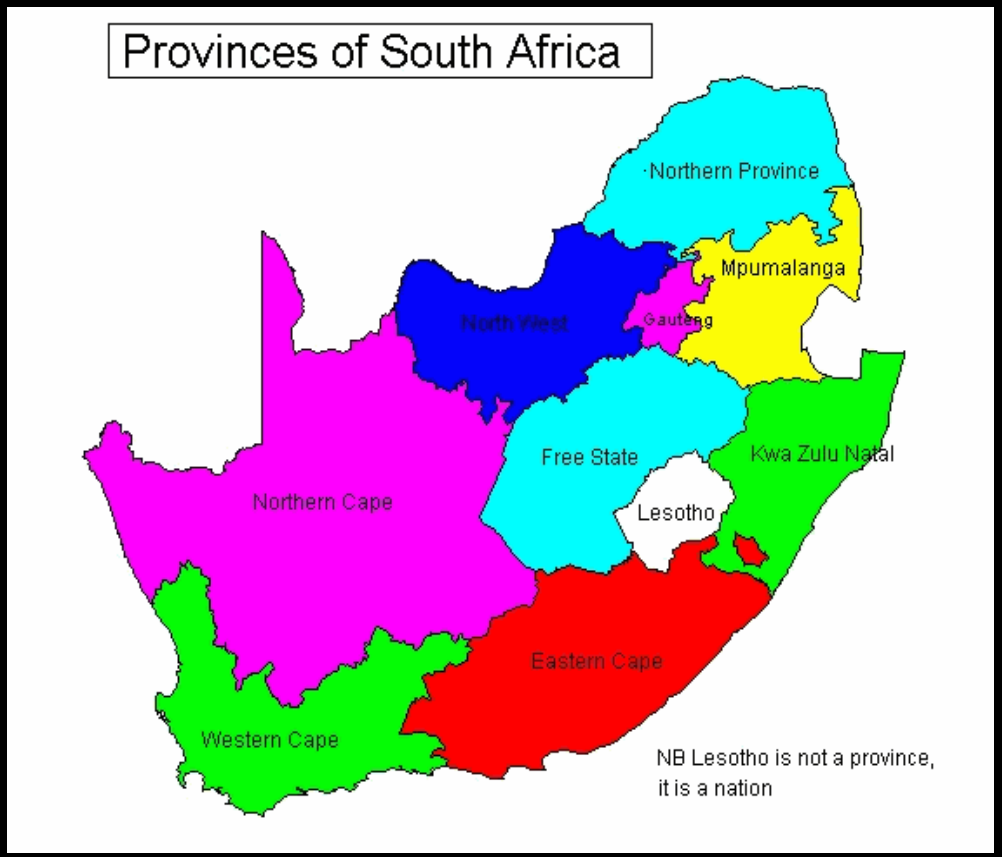
Outline

- TB/HIV background
- WHO Collaborative Activity Indicators
- Active versus passive case finding
- Current issues with screening, diagnosis, referral
- Operational research/evaluation priorities

Challenges to Global TB Control

- Insufficient financial and/or human resources (including supervision)
- Low TB case detection (<70%)
- Low treatment success (<85%)
- Rising HIV rates
- MDR TB
- TB in high risk groups
- Health sector reform
- *Operations research agenda to face these challenges not defined or prioritized*

TB in the Republic of South Africa



- TB burden 2003
  - Incidence: 558/100,000
  - Notified cases: 255,455
- Treatment outcomes
  - Cure/completion 60-70%
  - Death 10%
- TB case finding
  - Varies by province
  - Some provinces over 100%
- MDR among patients in 2002
  - New: 1.6% (1.0 - 2.6%)
  - ~6,000 cases annually (estimate)
- HIV prevalence in TB pts
  - 55% coinfection (estimate)

Latent TB Infection and HIV/AIDS

- Latent TB infection may progress to disease
  - Risk greatest in first 2 years after infection
  - Host factors modify the risk
  - Lifetime risk is 10%

- TB and HIV coinfection
  - TB and HIV are synergistic
  - 30%-50% lifetime risk of developing TB
  - Annual risk of progressing to disease is 10%
  - Patients can present with TB before ART initiation or after

TB/HIV Collaborative Activities

A. Establish mechanisms for collaboration

1. Set up a coordinating body for TB/HIV activities at all levels
2. Conduct surveillance of HIV prevalence among tuberculosis patients
3. Carry out joint TB/HIV planning
4. Conduct monitoring and evaluation

B. Decrease the burden of tuberculosis in people living with HIV/AIDS

5. Establish intensified tuberculosis case-finding

6. Introduce isoniazid preventive therapy
7. Ensure tuberculosis infection control in health care and congregate settings

C. Decrease the burden of HIV in tuberculosis patients

8. Provide HIV testing and counselling
9. Introduce HIV prevention methods
10. Introduce co-trimoxazole preventive therapy
11. Ensure HIV/AIDS care and support
12. Introduce antiretroviral therapy

WHO Interim Policy on Collaborative TB/HIV Activities, 2004

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B.1 Decrease the Burden of TB

- Indicator B.1.1: **Proportion of PLWHA attending for HIV testing & counselling or HIV treatment & care services who were screened for TB symptoms**
- Indicator B.1.2: **Proportion of PLWHA attending for HIV testing & counselling or HIV treatment & care services who are newly diagnosed with TB through screening**
- Indicator proposed: **Proportion successfully completing TB treatment**

B.2 Treatment of Latent TB Infection (IPT)

- Indicator B.2.1 **Proportion of newly diagnosed HIV-positive clients who are given treatment for latent TB infection**

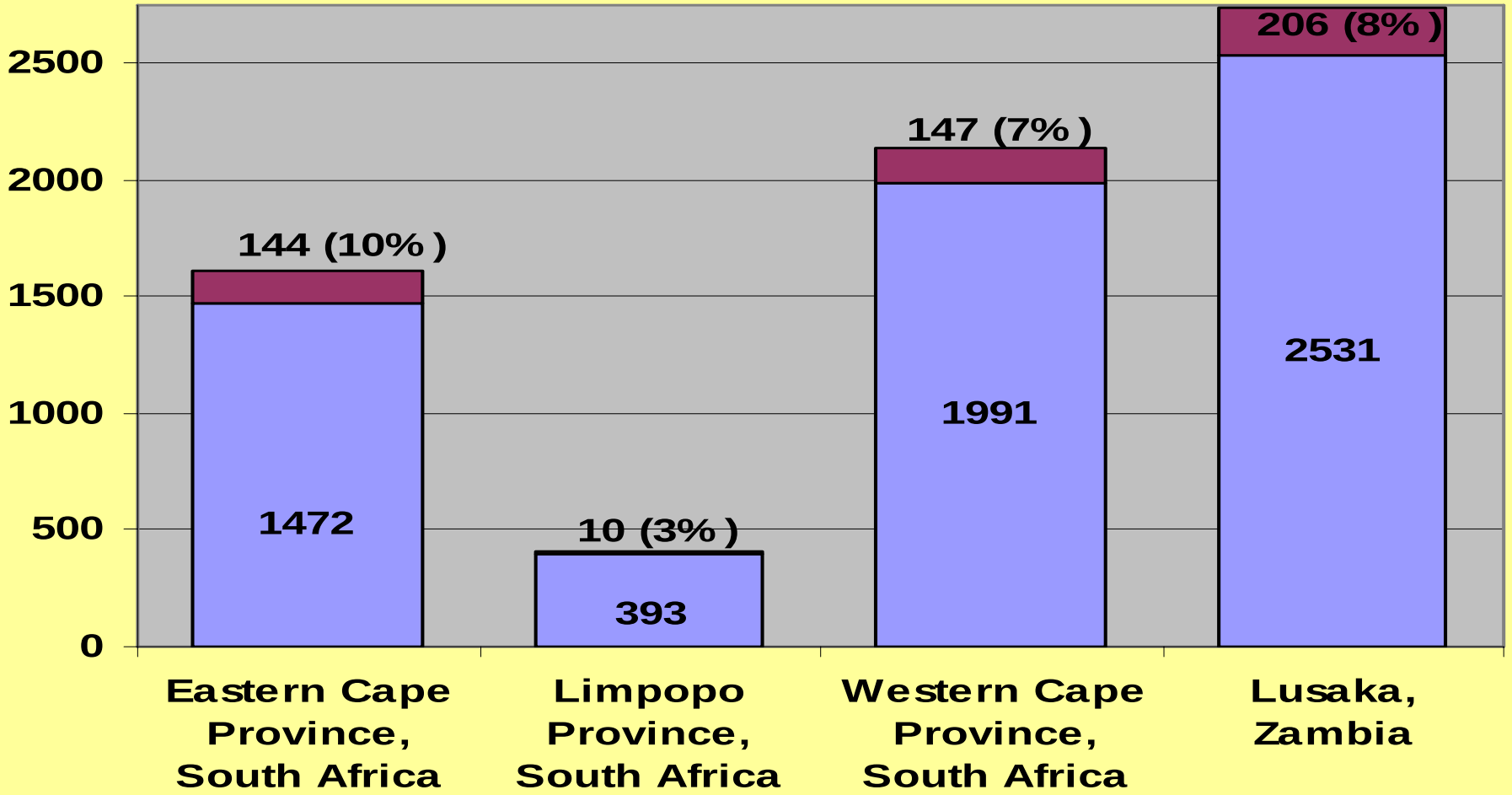
Indicator Reporting

- Data stratified by site:
  - VCT
  - ART
  - PMTCT
  - Home-based care

TB in VCT & HIV Care Settings

- Tuberculosis (TB) is the leading cause of morbidity and mortality in people living with HIV / AIDS (PLWHA)
- High early mortality in HIV-infected TB patients
- Early detection can increase chances of survival, improve quality of life, and reduce TB transmission in community
- Growing evidence of previously undiagnosed TB detected among persons newly diagnosed with HIV through VCT and PMTCT programs

Cases of Previously Undiagnosed TB Identified at Various VCT Centers in Africa (1999-2002)



Report of the "lessons learnt" workshop on the six ProTEST pilot projects in Malawi, South Africa, and Zambia. 3-6 February 2003, Durban, South Africa. Geneva, World Health Organization

Strategies in Different Settings

- VCT
  - Testing done anonymously
  - Patients do not often return
  - Patients often well

- ART
  - Patients are known to the system
  - Frequent visits to clinics
  - Patients generally more ill

Active versus Passive

- Passive case finding
- Active case finding
  - Intensified case finding: actively implementing systematic screening for TB in all settings

Intensified TB Case Finding

- Current diagnostic algorithms developed prior to HIV/AIDS epidemic
- No clear consensus on how best to screen for and diagnose TB in PLWHA
- Differences in TB disease presentation in PLWHA
  - Atypical signs and symptoms
  - Sputum smear may be negative in up to 40%
  - Chest radiograph may be normal in up to 50%
- Excluding active TB disease is a prerequisite for IPT and ART

Intensified TB Case Finding (ICF) According to WHO Interim Policy

- VCT clients
- PLWHAs, at first attendance, prior to ART
- Household TB contacts
  - Inclusion of HIV screening?
- Congregate settings (prisons, military barracks, schools)
- Other groups at high risk of HIV

Operational Issues with Screening Tools

- Lack of standard TB Screening Tool
- Screening instrument using weight loss, cough, night sweats, fever had sensitivity of 100% and specificity of 88%. Mohammed IJTLD 2004;8:792.
- Chest radiography of limited use in asymptomatic HIV+ enrolled in IPT program, **BUT!** Mosimaneotsile Lancet 2003;362:1551.
- Chest radiography and BACTEC culture found 11% of PMTCT population with active TB. Nachega AIDS 2003;17:1398.

Operational Issues with TB Diagnosis

- Second smear, or third, often not sent
- Limited availability of histology services for lymph node aspiration and/or biopsy
- Role of trial of antibiotics
- Diagnosis in children

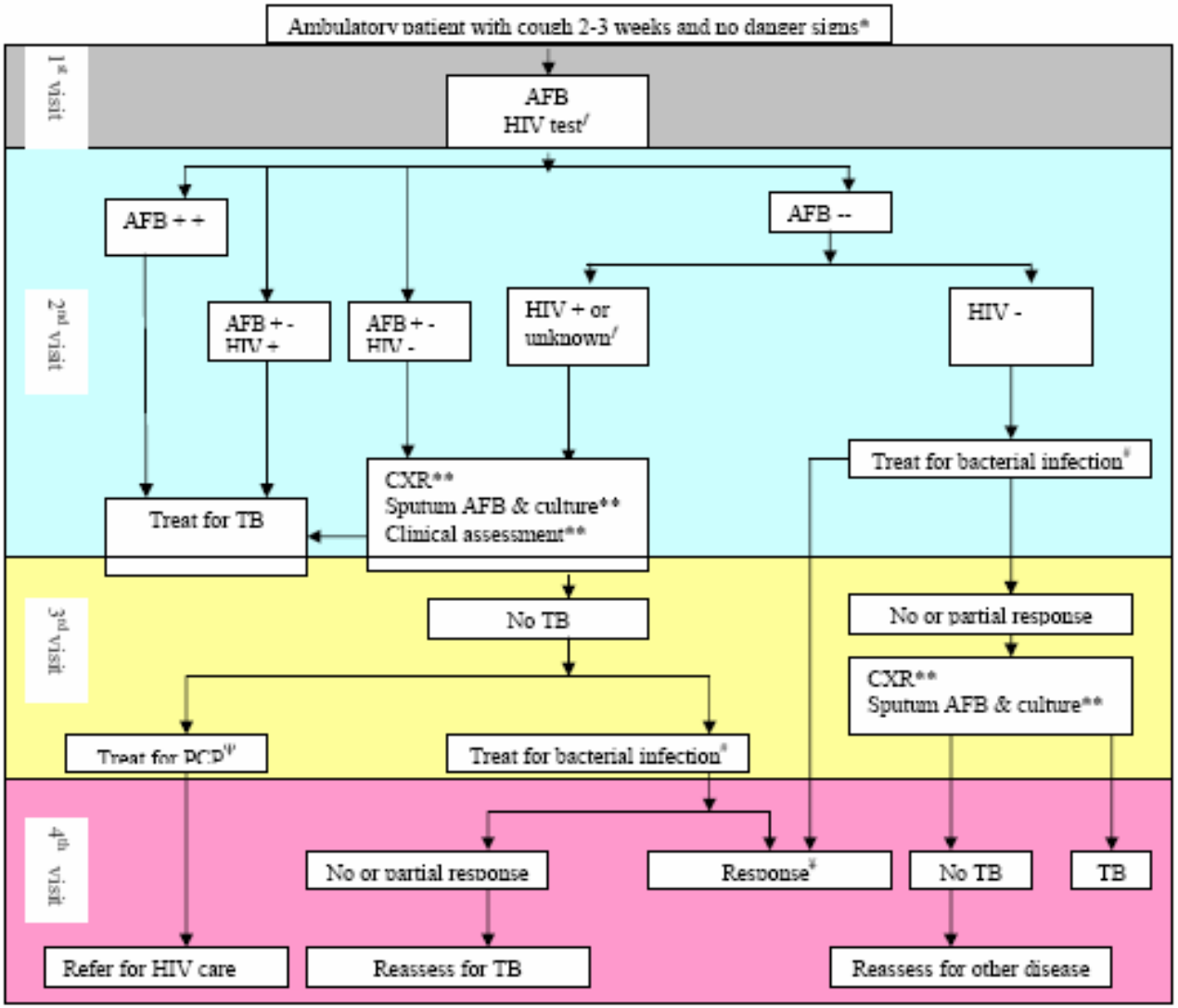
- TB cases must be reported to the National TB Program

Expert Consultation to Revise Algorithm for Smear Negative TB (SNTB) September 2005

- Policy review found that HIV status was not considered in any country-level algorithms for SNTB except one
- Wide duration of diagnostic evaluation period
- Variable use of empiric antibiotics
- Utility of chest radiograph uncertain

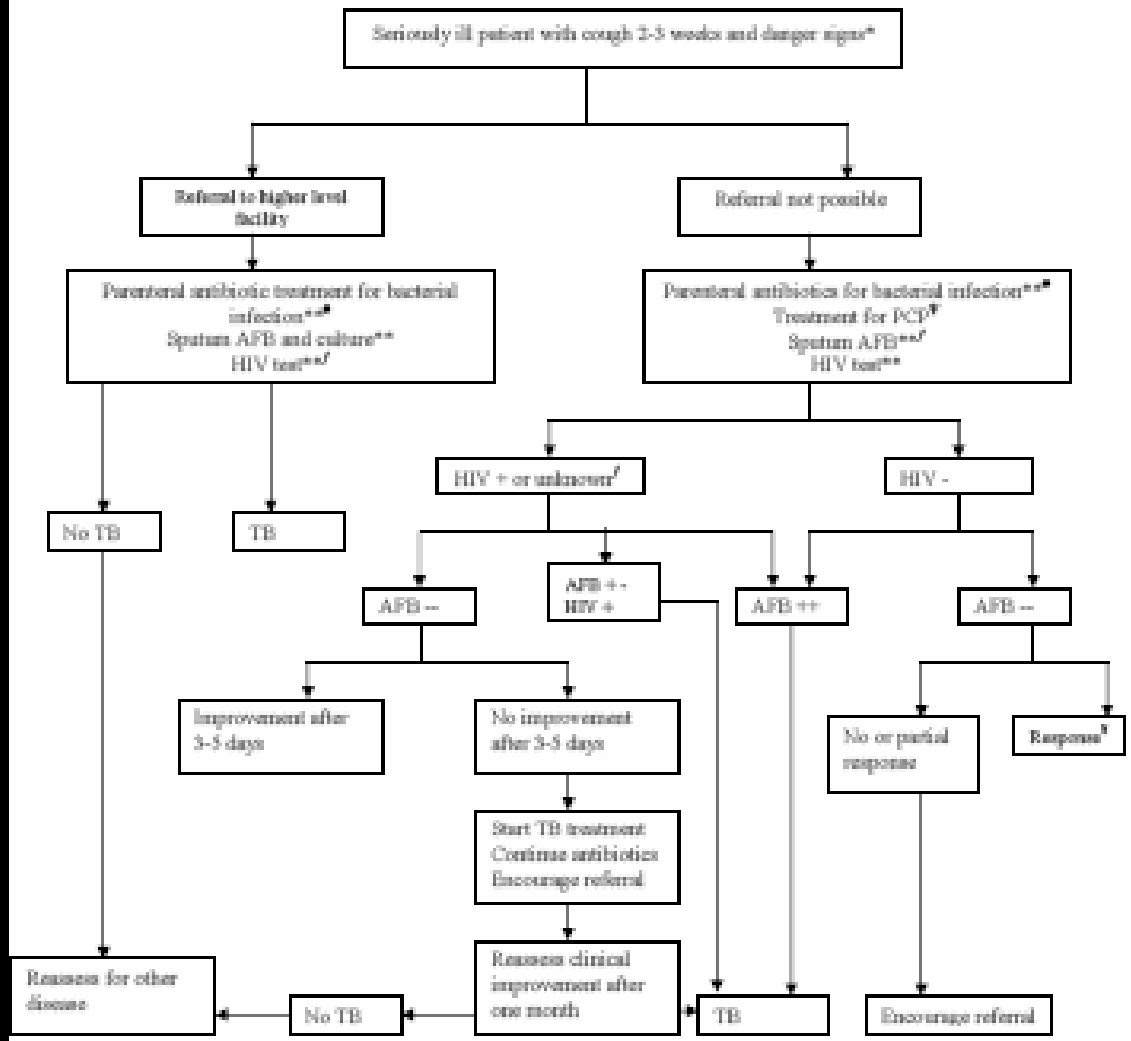
- Need for evidence-based guidance for regions with high HIV prevalence and constrained resources

Annex II. Algorithm for the diagnosis of TB in ambulatory patient



* The danger signs include respiratory rate >30/minute, fever >39° C, pulse rate > 120/mt and unable to walk unaided.
/ For countries with adult HIV prevalence rate ≥1% or prevalence rate of HIV among TB patients ≥5%
** The investigations within the box should be done all at a time, wherever it is possible in order to decrease the number of visits and speed up the diagnosis.
# Antibiotics (except Fluoroquinolones) to cover both typical and atypical bacteria should be considered.
∇ PCP: *Pneumocystis carinii pneumonia* also known as *Pneumocystis jirovecii pneumonia*
¥ Advise to return if symptoms recur

Annex III. Algorithm for the diagnosis of TB in seriously ill patient



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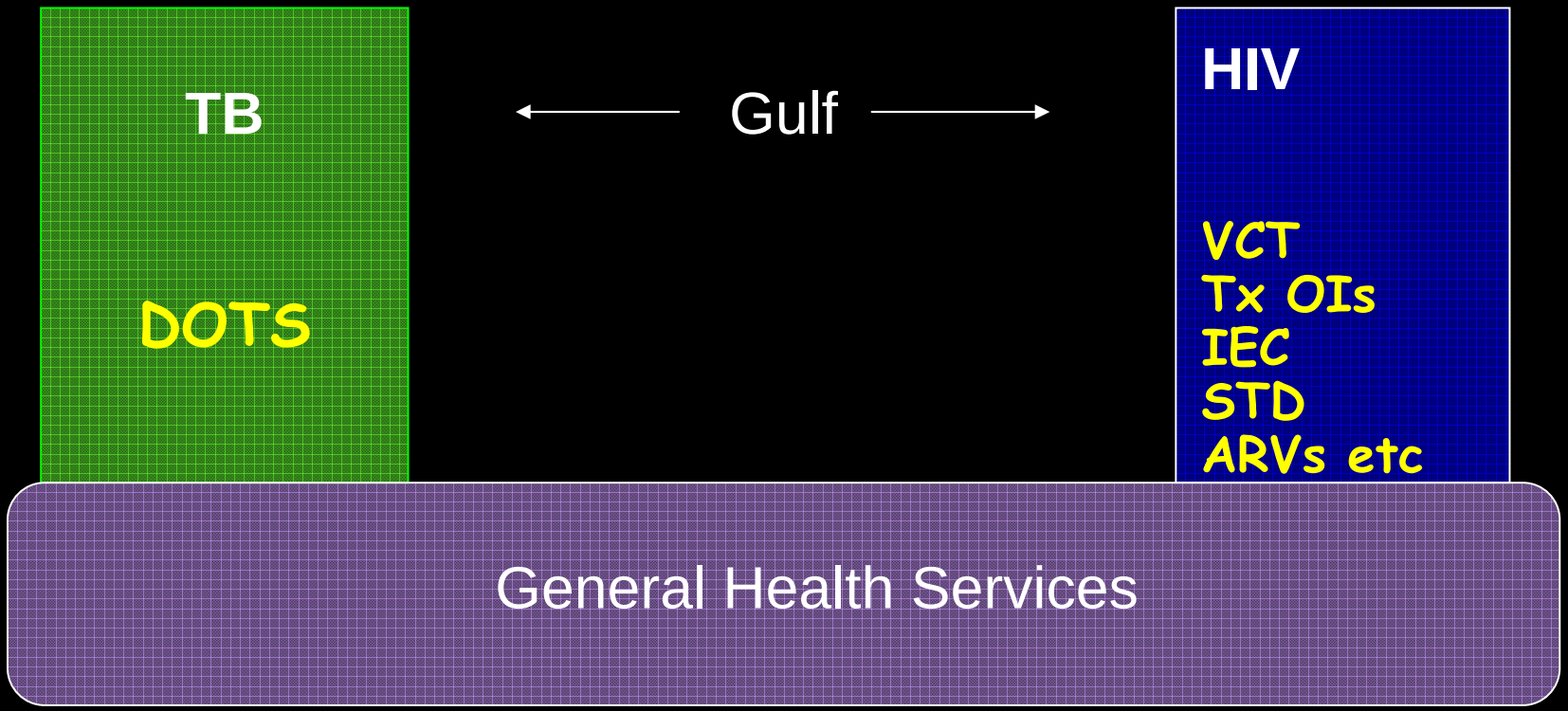
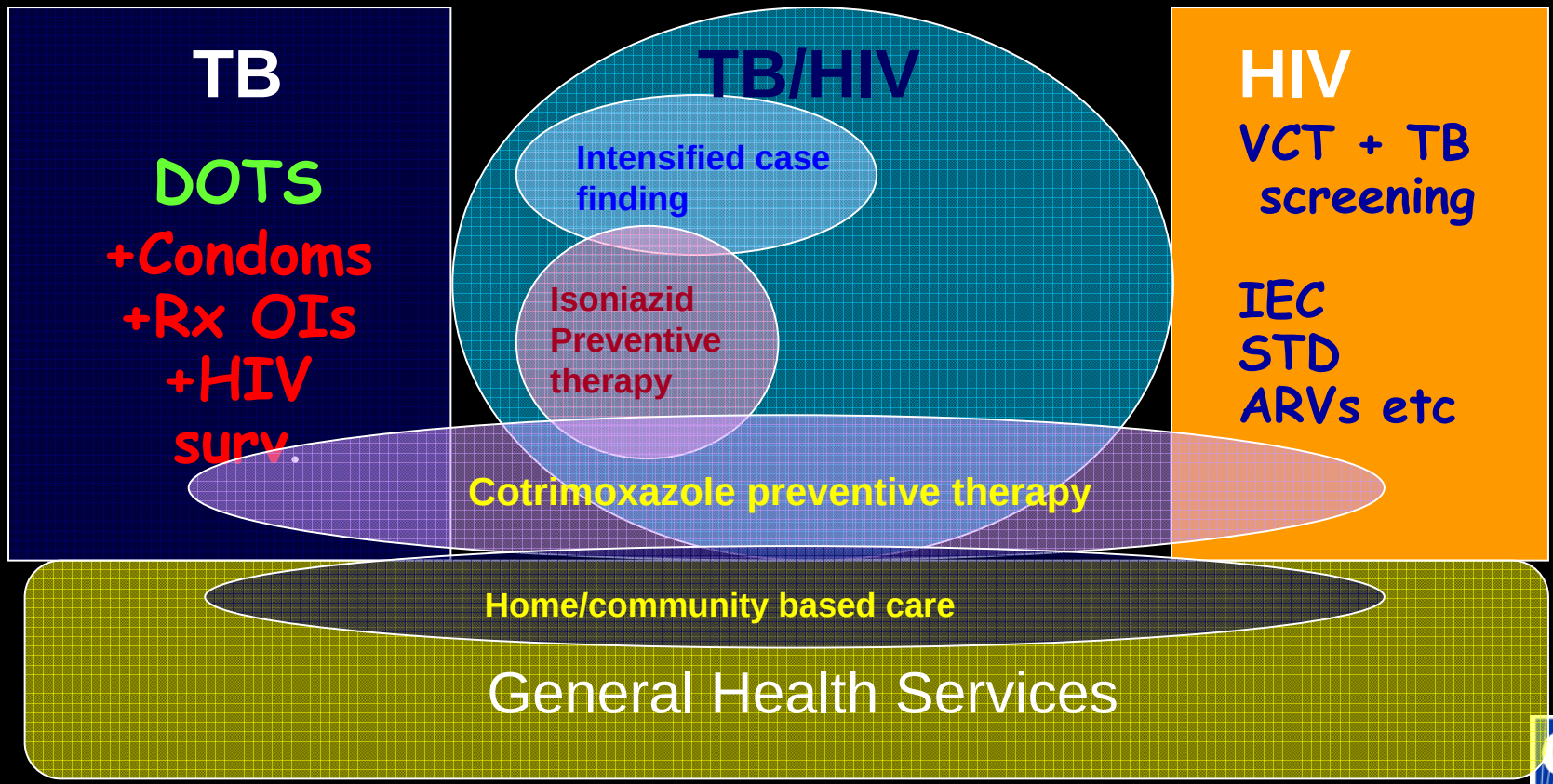
Operational Issues with Referral



TB/HIV Joint Activities



Evaluating TB Screening (1)

- Optimally sensitive and specific TB screening tool?

- Should we be using different tools in different settings?
  - VCT sites versus ART sites versus PMTCT

Evaluating TB Screening (2)

- In ART settings, should we stratify patients by immune status, or WHO Clinical Stage?

- What is the role of the tuberculin skin test (TST)?

Evaluating TB Diagnosis (1)

- Improved sputum/microscopy techniques: induced sputum, concentration/bleach methods/fluorescent microscopy
- Are routine culture techniques possible as standard of care in resource limited settings?
- What is the role of lymph node aspiration in each setting?

Evaluating TB Diagnosis (2)

- What is the role of the chest radiograph in each setting?

- Revised diagnostic algorithm for smear negative TB now proposed
  - Applicable in all settings?
  - Ambulatory versus severely ill patients?

Evaluating Referral Mechanisms (1)

- Patient referral with/without sputum smear and/or culture
- Referral linkages with local TB clinic
- What are other successful strategies to ensure referral? (avoid loss to follow up)

Evaluating Referral Mechanisms (2)

- Follow up of TB screening and treatment
- Ensuring completion of treatment

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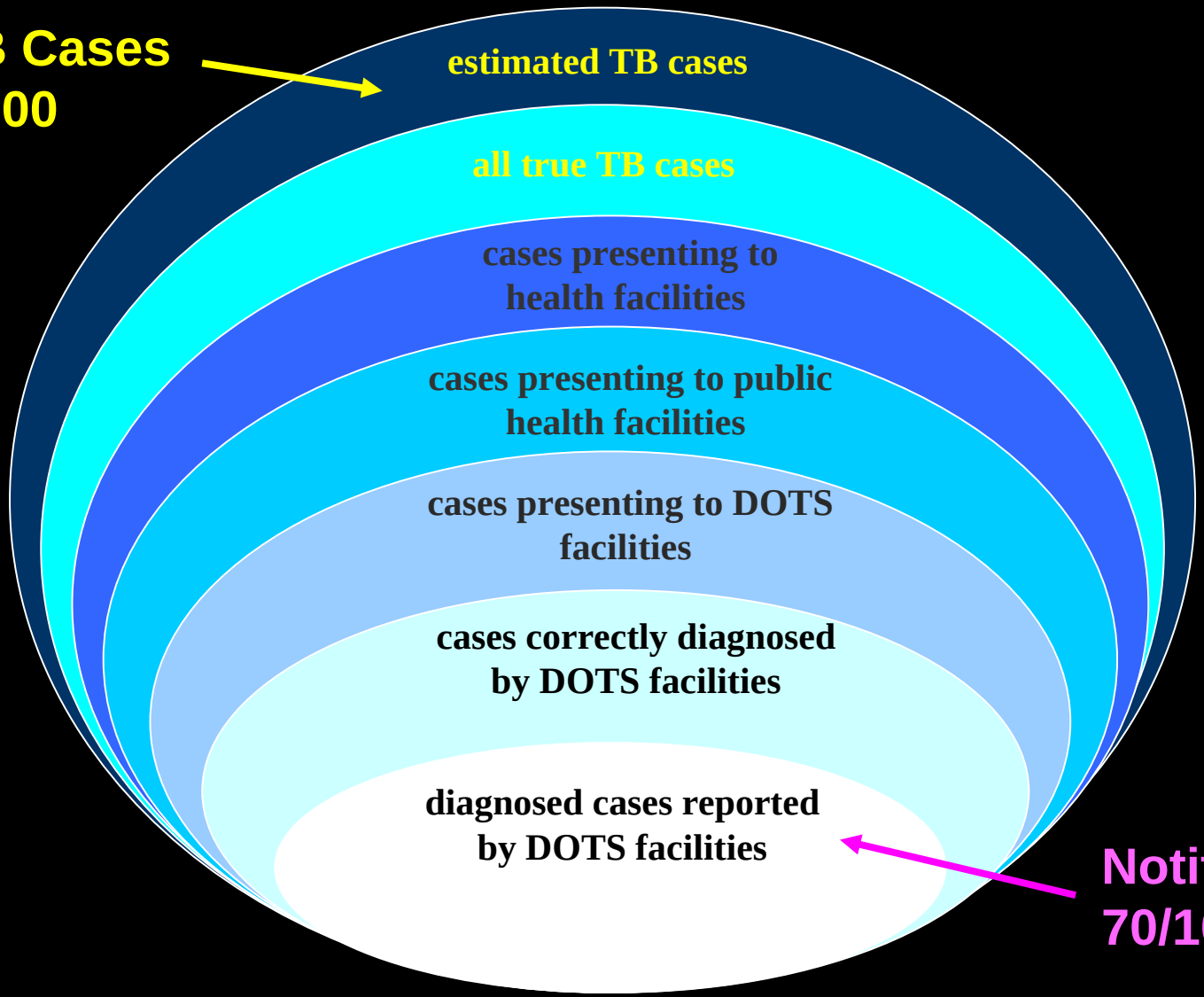
WHO STOP TB
- Alasdair Reid

Thank you

Why are TB cases “undetected”?

Est all TB Cases
372/100,000



Notified TB Cases
70/100,000

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